AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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Batch 57

1. SUBJECT CLASSIFICATION
A. PRIMARY
TEMPORARY
B. SECONDARY

2. TITLE AND SUBTITLE
Radio's role in development; five strategies of use

3. AUTHOR(S)
McAnany, E.G.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1973	31p.35p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS
AED

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*
(In Info.bul.no.4)

9. ABSTRACT
(EDUCATION R&D)
(COMMUNICATION R&D)

Since educators in developing countries need up-to-date information on the use of technology for improving education, this bulletin presents results of research on the present and potential uses of radio as an educational medium in developing countries. It discusses five utilization strategies: open broadcasting, instructional radio, radio rural forums, radio schools, and radio and animation. Presents the following findings and recommendations: (1) Efforts to use radio for rural development have been fragmented. (2) Radio is reaching only a minute fraction of its potential audience. (3) Little evidence is available concerning the effectiveness of present projects. (4) Radio strategies need institutional support. (5) Most existing projects are poorly planned and lack administrative support. (6) Better efforts should be made to establish the costs of various radio strategies. (7) New projects should be carefully planned, be tied to a multiple-media approach, and use trained monitors and field supervisors. (8) New projects should evoke as much local participation as possible. (9) The projects should be conducted in areas of a country that show signs of increased awareness. (10) More research should be conducted on radio strategies. (11) Training of technical people should emphasize simple, basic skills that rural people can easily acquire. (12) Finally, new projects should examine possibilities for coordinating locally controlled projects with large-scale uses of technology.

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-AAD-453	
12. DESCRIPTORS	13. PROJECT NUMBER
	14. CONTRACT NUMBER AID/ta-C-1056 GTS
	15. TYPE OF DOCUMENT

AID 590-1 (4-74)

Information Bulletin Number Four
INFORMATION CENTER ON INSTRUCTIONAL TECHNOLOGY
Academy for Educational Development
1424 Sixteenth Street, N.W.
Washington, D.C. 20036

RADIO'S ROLE IN DEVELOPMENT: FIVE STRATEGIES OF USE

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September, 1973

RADIO'S ROLE IN DEVELOPMENT: FIVE STRATEGIES OF USE is one of a series of research reports by the Institute for Communication Research, Stanford University, under contract No. AID/csd-3284 with the U.S. Agency for International Development.

This bulletin is intended to provide educators in developing countries with up-to-date information on developments in the use of technology for improving education around the world. It is one of a series of publications of the Information Center on Instructional Technology, a service organization providing information and expert assistance in this general area. The Center, operated by the Academy for Educational Development, is supported by the Bureau for Technical Assistance of the U.S. Agency for International Development.

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I. Introduction

In 1969 there were over 10,000 radio transmitters around the world* broadcasting to 653 million radio sets in almost 200 countries (UNESCO 1972). In ten years the total number of sets had almost doubled. In certain world regions the growth was more spectacular: Africa increased its sets by 271%, Latin America by 155%, East Asia by 100%, South Asia by 380%, U.S.S.R. by 121%. There are more radios than people in the United States and Canada (1339 per 1000). 110 of the world's countries reported broadcasting about 250,000 hours a week ranging from news to soap operas. From the welter of all these data emerges a single clear conclusion. At present man's most universal mass medium of communication is radio.

The focus of this paper is not on the medium of radio, nor even on its educational or instructional use. Others have reviewed this record (e.g. Chu and Schramm 1968; Forsythe 1970; Jamison, Suppes and Welles 1973). Rather, the present focus is on radio in the rural setting of developing countries where it may have the greatest potential for aiding human growth and development. These areas generally contain a majority of the population who live a marginal existence in agricultural work that has low productivity. The people suffer from poor nutrition and health, lack of education, and a passivity and fatalism that seem to make their life more bearable. What most governments want for their large masses of rural poor is for all of this to change and for these millions of people to "modernize," become more productive, eat better, get a basic education, produce fewer children, have better health. Some governments add to this litany of good wishes that people should also participate in their own development, have control over their lives, maintain a sense of their own cultural identity and still share in the other benefits of modern life. But few countries seem to know how all this is to be done.

What role might radio play that makes it an especially attractive medium in this setting? The potential advantages of radio for the task are four: time, cost, effectiveness and localness. The potential that radio has with regard to *time* is the most clear cut. Presently radio reaches practically all populations in all countries in a large variety of languages. Even if the distribution of sets favors the urban areas, the diffusion of cheap transistor sets through rural areas is sufficient to guarantee virtual coverage of most countries. The other leading mass medium, television, cannot hope to reach this same audience within a decade, whereas radio is currently available and already reaching the rural masses.

The second potential advantage is *cost*. There have been a number of estimates of costs for radio and television and the ratio for production/transmission costs ranges from 1 to 4 and up. A recent data based cost study by Jamison and Klees (1973) confirms what others have indicated in the past (Chu and Schramm 1968; General Learning Corporation 1968), i.e., that costs are approximately *1* to *4* for production and transmission in favor of radio. Reception costs are more difficult to compare because of a wide range of receiver costs; the inclusion of this component might favor radio even more. Another cost consideration important to most countries is the level of technical training demanded to operate a radio rather than a television system. Frequently, the installation of television calls for a large influx of foreign technicians that many countries may not want. Radio in contrast demands fewer such technicians and many countries already have sufficiently trained personnel to take care of even expanded demands.

The third potential that radio has is its *effectiveness*. There is continuing debate over the comparative effectiveness of radio vs. television because little

*Excluding The People's Republic of China.

direct comparative evidence exists (Jamison, Suppes and Wells 1973; Jamison and Klees 1973). The debate may be put aside in the present context because television is simply not reaching nor likely to reach the rural poor in the next few years. The effectiveness of radio for educational purposes has not been as widely tested as television. Still, there is considerable evidence that radio can be and has been used effectively for instruction in formal school settings (Forsythe, Leslie 1970; Jamison, Suppes and Wells 1973), out of school teaching (Krival 1970; Dodds 1972; Schramm 1973), and community development (Vega and Keeler 1971; Brumberg 1972; White 1972).

Finally, radio has certain advantages in *localizing* the rural development effort. It is a relatively inexpensive medium compared with television (though see Bourret 1971 for a potentially lower cost TV system) which allows for creating local stations that serve a relatively limited area with homogenous language, culture and interests (Gwyn 1972). Programming may not only educate but reinforce local values that may be threatened by dominant groups anxious to "develop" a marginal area or group (Schmelkes 1973). Local stations, broadcasting in local languages, can contribute to the solution of local problems and provide a voice for their audiences through a more appropriate feedback mechanism (Mills 1972; McAnany 1972).

II. Where Radio is Used: The Beginning of a Map

The four advantages that radio offers make it one of the most promising resources that most countries have for their development and social change efforts in rural areas. Indeed, many countries have recognized these advantages and are using radio at present in their rural projects. Unlike television, however, there is little formal information available on radio projects in developing countries. Ideally there should be a map of radio projects with all relevant information, and there should be a mechanism for updating this map periodically. Such an effort would allow planners to see what is going on in this medium and to learn from present and past experience. Unfortunately such a map does not exist and information is scarce and highly fragmented.

Table One is a first step at placing some of the reported research into perspective. It lists radio projects under five major utilization strategies and the continent and country where the work is being done. The utilization strategies will be discussed below. In the table, each identified project is referenced to a document cited in the bibliography. The table as well as the bibliography is far from exhaustive but it may provide the impetus both to identifying projects and gathering more information on them in the future.

TABLE ONE: The Beginnings of a Radio Map: Utilization Strategies

Open Broadcasting	Instructional Radio	Radio Farm Forums	Radio Schools	Animation
Latin America Peru *Africa* Cameroon (Browne 1963) Upper Volta (Mills 1972) Zaire (Egly et al. 1971; Davis 1970) *Asia* New Guinea (Halesworth 1971)	*USA/Canada* (Forsythe 1970, Jamison, Suppes, et al. 1973) *Latin America* Brazil (IPEA 1972) Mexico (Spain 1973, Schmelkes 1973) *Africa* Cameroon (Dublin 1970) Ghana (Kinross 1961) Kenya (Krival 1969) Mauritius (Meyer 1970, Dodds 1973) Nigeria (Arms 1963) Rwanda (Dodds 1972) Senegal Sudan (Phillips 1964) Tanzania (Dodds 1972) Zaire (Egly et al. 1971) *Asia* Australia (Watts 1970, Kinane 1967) Brit. Solomons (Kent 1971) Indonesia (Jamison 1971) Japan (Leslie 1971) Korea (Hulsen 1967) New Zealand (Ewing 1967) Tahiti (Medard 1962) Thailand (Schramm 1967)	*Africa* Dahomey (McAnany 1972) Ghana (Coleman et al. 1968) Mauritius (Dodds 1973) Nigeria (Hursh 1968) Togo (Kahnert 1967) Zambia (Eschenbach 1971) *Asia* Afghanistan (Wilson 1970) India (Schramm 1967)	*Latin America* (OSAL 1972) Argentina–INCUPO Bolivia–CAMCOS –San Rafael –ACLO Brazil–FEPLAN –MEB (also de Kadt 1970) Chile–Sta. Clara Colombia–ACPO (also Musto 1971, Brumberg 1972) Costa Rica–ICECU Domin. Rep.–Sta. Maria Ecuador–Popular –Pichincha –SUCUA El Salvador–Radio Schools Honduras–ACPO (also White 1972) Guatemala–FEGER (Gomez 1971) Mexico–Tarahumara (Schmelkes 1973) –Huayacucotla Panama–Veraguas –Rad Hogar Peru–OndaAzul (Musto) –Huallaga (Musto) Venezuela–IVT	*Canada* (Gwyn 1972, Dodds 1972) *Latin America* Brazil (de Kadt 1970) Chile Peru *Africa* Dahomey (McAnany 1972) Niger (El Hadj et al. 1972) Senegal (Mills 1972) Togo (Marathey 1972)

III. How is Radio Used: Five Utilization Strategies

Radio is a medium or a means of conveying certain kinds of information. It can be a powerful tool in assisting in the development process of countries but its effectiveness depends not only on its intrinsic qualities but more importantly on how it is used and for what purposes it is used. Behind each use to which radio has been put are certain assumptions about radio's effects, about the structure of reception and about learning and social change. There are a number of strategies, all of them effective in certain circumstances. The success of radio as a medium will depend upon trying to clarify these assumptions of the various utilization strategies so that a country's needs are fitted to appropriate uses of radio.

A. Open-Broadcasting: The Unorganized Audience

The voice of Dr. Massikita carries a message about feeding a new-born child or getting a vaccination for older children or choosing good kinds of vegetables for the family dinner. For 15 minutes a week in five languages he speaks to Zaire's people. He speaks to basic medical and health needs in the person of a country doctor with a down home approach adapted to each cultural group. The program draws hundreds of letters a year from its audience, asking advice, thanking Dr. Massikita, even inviting him for a visit. Most of his listeners do not know that their favorite doctor is only a creation of a group at a small production center in Kinshasa called Radio-Star. Occasionally, when an enthusiastic listener comes into Kinshasa from a village, the station gets a call to see the famous doctor. The request is politely turned aside with the excuse that the "doctor" is out on a trip to the villages.

An example of a successful open broadcast program, Radio-Star's Dr. Massikita illustrates both the advantages and the limits of this strategy (Boisschot 1969). Let us examine both the strategy and example a bit further.

A UNESCO radio survey of 110 countries reports that educational programs take up about 6,500 hours a week (UNESCO 1971). This seems like an impressive amount, but it represents only about 2.5 percent of the 250,000 hours a week of radio broadcasts. How are these educational hours used in different countries? Zaire may again serve as an example. The single national station, RTNC in Kinshasa, broadcasts 23 hours a day or 161 hours a week. Radio-Star contributes a majority of the educational programming but its 12 hours is only about 7 percent of the total message while 80 percent is mostly music with some news and a few other programs.

Formats in many other African countries seem to be similar: a small core of "educational" programs (women's "home" programs, health and agricultural information in the morning and/or evenings, with perhaps a program for youth and an occasional literacy class) all repeated weekly in 2, 3, or a dozen languages. Latin America has many more transmitters and consequently more hours of radio at its disposal, yet the pattern of open educational broadcasts does not seem to be that different from Africa. With only two major languages covering a majority of its populations, most Latin American stations can also reach a wider audience. Asia is somewhat in between Africa and Latin America in language problems but where radio is used for education, it does not seem to have avoided the problem of education vs. entertainment for its audiences (Spain 1971).

We lack evidence in the area of cost-effectiveness. Fundamentally one would like to ask whether all of the effort is worth it. Lacking evidence, educational broadcasters often operate on a blind faith that their programs have people listening and that these listeners benefit. Both assumptions need to be questioned.

Are People Listening?
Are Listeners Benefitting?

Two audience surveys in Mexico (Arana 1971) and the Philippines (Spain 1971) cast a little light on the first question of whether an audience is listening. A study was conducted in an Indian village in the state of Morelos, close to Mexico City. Although a poor area, 82 percent of the surveyed population owned radios, slightly more had access to radio. Even though the local radio station carried information relevant to programs concerning literacy, local minimum salary information, crop prices and health programs, the surveyed audience knew very little of such things. What they did know about such topics were prices and salaries in Mexico City, but not in their home town and state. Over two-thirds preferred to listen either to music or radio drama, few to the local educational programs, or even to those from the capital. The study found respondents with consumer needs quite high but little awareness or interest in programs about education, health or jobs.

A similar audience survey (Spain 1971) of the Davao area of Mindenao in the Philippines found that news, drama, music and a weekly amateur hour were heavy favorites and that public service, farming and family planning programs had few listeners. In both studies, the conclusion is clear: information programs often compete with a variety of entertainment programs for audience attention and frequently reach an insignificant number of the potential audience.

The second assumption is that open broadcast educational programs affect the audiences that are listening. The large body of literature on the effects of the media (cf. Chu and Schramm 1968; Schramm and Roberts 1971) would seem to indicate that direct effects on people's attitudes and behavior are slight unless messages are tied into primary social structures of the audience. There is the important function of providing information, however, that media like radio can serve. Whether such information will be useful in turn depends on a number of other factors beyond the radio's control. For example, Radio-Star's efforts to improve health practices with a 15 minute weekly program, however popular, will not make much of a difference in peoples' lives unless people have the possibility of some minimal rural health service. Or again, the effort in New Guinea to persuade people not to migrate to the cities through a radio soap opera (Halesworth 1971) must convince people that there is something worth staying for in the countryside. Unless government programs help develop rural areas, audiences will remain obstinate to persuasion.

In addition to this fundamental objection against an assumption of direct effect of radio in changing people, there are a number of practical problems. There is often a disparity in culture, experience and understanding between the educated, urban programmer and his rural audience. Furthermore, the low budgets common to most programs of this type also may mean that no genuine assessment of people's needs can be done and no basic feedback is generated to discover the impact the program might be having. There is most frequently a lack of coordination between broadcasting and programs and services for rural areas from ministries of health, agriculture, education, etc. Often the programs are generated from studios with no clear objectives other than a vague idea of doing something "educational" for the audience. Such attitudes reflect the low priority as well as low budgets governments give to programming of this type. As a consequence, quality suffers.

In Latin America and other places where there is intensive commercial broadcasting, there is often a bizarre overabundance of city oriented information transmitted that serves to reinforce consumer habits little adapted to rural development. In the Philippine study (Spain 1971), there were 18 radio

stations competing in a single 3-province area for commercial advertisers and audiences. Even a community development station in the area was primarily concerned with getting enough advertising to stay in business. Under these circumstances it would be difficult for even good educational programming to compete with music or soap operas, as, indeed, the survey showed that it did not.

Despite practical difficulties, the open broadcasting strategy can be used effectively in providing information and · izing people to new ideas. If planners take the communication medi· ;ly and carefully define their objectives, then radio can play a part in t.. rural development process. Alone it can do little to change the structural problems that impede development. If it can fit in with genuine change efforts of the government or other change-oriented groups, then open broadcasting can be an important tool for development.

B. Instructional Radio: The Organized Learning Group

Instructional radio is a second strategy for using the broadcast medium for social change and development. Two recent evaluations (Schmelkes 1973; Spain 1973) will help to illustrate the assumptions, operations and problems that exist for instructional radio in rural areas.

The first assumption about instructional radio is that it is part of a formal school system. Experience indicates that although this is generally true, it may be outside the classroom and even of the formal certifying system. In Thailand (Schramm 1967) there is a large system in the primary schools throughout the country; in Australia (Kinane 1967) the instruction by radio goes to individual children in isolated rural homes; in Bunia in Zaire (Egly, McAnany, Margolin 1971) it is in formal schools; in Tanzania (Dodds 1972) it is used to teach practical skills by correspondence and radio to rural villagers; in the People's Republic of China (New York Times, August 22, 1972), Shanghai's population was getting instruction in English outside any formal system. Whether this last example falls within the open broadcast strategy or instructional radio may be questioned.

A second assumption frequently stated for using instructional radio is that it reduces costs by substituting for teachers. This was a key factor in the Mexican Radio Primaria planning (Spain 1973): radio broadcasts plus a single teacher in grades 4 - 6 for creating complete rural schools would be equally effective and considerably cheaper than trying to hire two or three teachers for the same task. Tanzania cannot afford to send bookkeeping teachers to her rural villages but radio and correspondence bring instruction to audiences at a considerable saving and overcome the poor communication links between city and country (Dodds 1972).

Instructional radio also assumes that students will be able to do necessary drill under the supervision of someone who can give feedback (either immediate or at a distance). Organization of listening and learning practice demands a structure, support materials, monitors or teachers and some kind of feedback or assessments. Effectiveness of radio instruction, therefore, is the result of more than simply broadcasting programs. Whether the burden and cost of the reception infrastructure is assumed by the broadcasting unit or by a local population, it forms an integral part of the instructional radio process (Hornik et al., in press).

There is a more basic assumption, often unstated, concerning instructional radio and education in rural areas. It is often assumed that better instruction

and more education will contribute to rural development. Most efforts at improving instruction, whether by educational technology or not, are premised on this assumption. Yet expanding formal schooling may have consequences that are not only not beneficial to rural areas but even detrimental. Schmelkes (1973) shows that whatever benefit radio schools among the Tarahumara Indians of Mexico had for a few individuals who finished the system, the community would almost certainly lose its most promising young people. Spain (1973) found that rural Mexicans in his study saw formal education as a ticket to migrate to the city. A UNESCO study (Gibbal and Villers, n.d.) from the Ivory Coast shows that education is the best predicator that a person will leave his village for the urban areas. Coombs (1973) points out that formal schools in rural areas do not teach the kinds of things that children need to learn to function well in their milieu.

Actual instructional radio projects in developing countries are as varied as are open educational broadcasts. There are few examples, however, of any large scale projects that use this strategy for a total curriculum. Mexico's Radio Primaria pilot project (Spain 1973) came closest to this in its first two years of operation when it created about 25 to 30 programs a week in practically all primary school subjects, but this breadth of coverage is being cut back at present. More commonly a few subjects are selected for radio instruction as in Thailand (Schramm 1967) where music, social studies and English were taught or in Sudan (Phillips 1964) where radio was teaching Arabic, tribal history and social manners.

An area of special importance for instructional radio seems to be for teaching second languages where radio and/or TV can hire teachers with good pronunciation so that poorly trained teachers can learn in the classroom along with students (Kinrose 1961; Medard 1962; Arms 1963; Brown 1963; Phillips 1964; Schramm 1967; Dublin 1970; Mansfield 1970; Egly et al. 1971; Clarke 1972). A number of countries in Africa use radio to teach the major school languages of English and French. Senegal apparently had such a successful French program by radio that it was to be transferred to television. Other subjects like math, science (Ball 1971), health (Ball 1971), history, etc. have been tried.

There is a continuum of experience in instructional radio from the relatively unsophisticated programming of the Tarahumara project where the content for the broadcasts was simply read out of a common textbook (Schmelkes 1973) to Brazilian programs using carefully developed curriculum, daily practice and carefully evaluated feedback (NASA 1971). Most instructional radio projects, however, have fallen at the relatively unsophisticated end of the continuum.

The evaluation of instructional radio as a serious instructional technology has net yet been carried out fully. Jamison et al. (1973) review some evidence from the U.S.. Schmelkes (1973) reports an evaluation of one project among the Tarahumara Indians of Mexico but observes that radio played a relatively minor role. Spain (1973) reports a second evaluation of a primary school radio project in rural Mexico but concludes, like Schmelkes, that radio seemed far less important than other factors in the overall assessment of the project. During their evaluations both made visits to all or a large number of the radio schools; they discovered radios were broken or inaudible in 29 and 41 percent of the schools respectively. Clearly the evaluation of the teaching effectiveness of instructional radio in rural areas of developing countries must await projects where transmissions have a chance to be heard so that some effect might be produced. Otherwise it would be incorrect to attribute learning results to radio.

It is clear that instructional radio can be better used than it has been in current and past projects. However, improved use may mean significant added costs. An ideal system would require careful curriculum development (and in most cases training native curriculum specialists), development and pretesting of instructional radio programs, development of exercise books and texts to accompany the broadcasts, distribution of such material, teacher training or retraining, a feedback system that would allow pick up of student exercises and probably a mechanized system (perhaps computerized) for correction and diagnostic evaluation. An instructional radio system of this sort will greatly surpass the usual cost estimates which consider only costs of basic production, transmission and reception (Jamison with Klees 1973). Much of the software development for such a system has already been completed in the area of primary mathematics and is open for testing in a wide variety of developing country settings. The same cannot be said of most other content areas and their research and development costs for use with radio will have to be added to the total cost of the instructional radio strategy for these areas.

The problems facing instructional radio in rural areas have been mentioned in passing and can be summed up here. First, programming is often of poor quality, with no pretesting nor careful evaluation. Second, there is often little or no administrative support, and little supervision is maintained with radio schools so that teachers become discouraged and turn off programs, or radios break down and are not repaired. Third, without contact, the programming center has no means of feedback as to how well (or whether at all) the instructional system is functioning. Finally, content of programming may be largely irrelevant to experience and needs in rural areas and the schooling experience itself, if made successful through radio, may well result in an exodus of the most promising young persons from the rural areas.

Despite these grave problems, instructional radio would seem to have an important future in rural areas. This could come about if the problems of rural underdevelopment were reanalyzed and a set of learning needs defined in which radio could conceivably play a part (Coombs 1973). Thus in Tanzania at present certain village needs are being met by radio instruction and correspondence. There are courses in agriculture developed in simple booklet form by INADES in the Ivory Coast (Dodds 1972) and to these will be added radio instruction by a Brazilian project (Caritas 1972). The principles of instructional radio should be able to be used to teach crop raising as well as set theory or French, but again this will only be meaningful if the genuine problems and needs of rural development have been focused upon and the solution is backed by government policy.

C. Radio Rural Forums: The Decision Group

This strategy for using radio with discussion and decision for rural groups was first begun in Canada before World War II (Nicol et. al. 1954) and later adopted and spread in India in 1956 (Bhatt and Krishnamoorthy 1965; Schramm 1967), and within the last decade in Africa especially: Togo (Marathey 1965); Malawi (Klonglan 1967); Ghana (Coleman et al. 1968); Dahomey (McAnany 1973). There are some forums in Asia and Latin America as well.

The basic strategy for the forum is the one developed in Canada and in large part preserved in later developments. There is a regular weekly radio program with segments devoted to rural news, to answers for listeners' questions, and to

the presentation of a discussion, a dramatization or a lecture on a topic of interest to rural groups. The 15 to 30 minute program is listened to by a volunteer group of villagers and then discussed. A discussion leader maintains order and encourages the dialogue about the subject. If possible the discussion results in some sort of action decision by the group for village or personal improvement in agriculture, health, home care or whatever topic was treated by the program.

The diffusion of the radio forum idea is due to the popularity and impact it had in Canada as well as its great appeal for development planners. From a communication researcher's point of view, the combination of a message carried to many groups by a mass media like radio, then localized by discussion in small groups and guided to a group decision conforms closely to existing theories of communication and social change (Rogers and Shoemaker 1971). Further, group members through exposure to information important to the rural milieu can become opinion leaders and spread this information to others in a classic two-step flow. Finally, forums send back written reports and messages to create the often missing feedback loop for the mass media. In many ways the forums sum up a number of important communication principles that give the concept great promise (Rogers, Ascroft and Roling 1970; Rogers and Solomon 1972).

For developers there are added appeals. Radio is a widespread phenomenon and its messages reach the most remote village. The forum is a way to get expert information to the key village people. Government policies have an important non-print channel into largely illiterate areas, and government agencies have feedback on both rural problems and acceptance of certain government policies for rural areas. Also the emphasis on the local decision group is consistent with the notion that rural development must essentially come from rural people themselves and not be simply a matter of large government intervention. Finally, there is the appeal of the relatively low cost (Roy et al. 1969). Rural forums usually cost little in comparison to hiring trained extension agents and to other rural development strategies.

Dahomey's Radio Rural Forums

The way that forums develop and operate may best be described by an example. Dahomey is a small and poor west African country that decided to introduce forums at the suggestion of an FAO advisor in 1968. The idea began with broadcasts and a few forums in 1969 and expanded rapidly until by 1972 there were estimated to be forums in 600 of Dahomey's 1800 villages (McAnany 1972).

The objectives of the forums are defined as follows: for villagers to understand and apply modern agricultural techniques; to improve nutrition, child care and health in the village; to understand the national development plan; to have positive dialogue with the government; and through all of these actions to achieve better national prosperity.

The organization follows patterns found in similar forum projects in other countries. A 30-minute program is broadcast each week treating several themes of practical use in the villages (e.g. cotton care, crop rotation, malnutrition among children, cooperative profits). The program is broadcast in ten native languages during the week. In each village a group of 10 to 30 villagers gather to listen and discuss the program with the guidance of an *animateur* or group discussion leader chosen from the village. The animateur sends in a monthly

report of meetings to the regional agricultural head who forwards it to the production center after noting anything of importance for his region. The village agricultural worker *(encadreur)* serves as a technical resource person for the forums, answering questions and guiding village projects that grow out of the discussions.

How do we evaluate an effort such as that of Dahomey? Evaluation efforts have been made in Canada (Nicol et al., 1954); in India (Neurath 1959); in Togo (Marathy 1965); in India (Schramm 1967); and in Ghana (Coleman, Opoku, Abell 1968). Basically these efforts have tried to measure either increased knowledge through forums, changes in attitudes toward innovations, or actual adoption of certain new practices. What has been difficult to show is the long term changes that may be attributable to the forums and to sort out changes brought about by the forums specifically from those caused by other influences at work in the communities. Even when subject to fairly careful control in a field experiment, researchers have found that conclusions about effects and their causes are difficult to make. In general, several experiments in radio forums and other rural communication strategies (Spector 1963; Roy, Waisenan and Rogers 1969; Rogers, Ascroft and Roling 1970), have shown them to be effective.

Costs are difficult to estimate though Schramm (1967) does make some attempt at this for India and Roy et al. (1969) show costs in small experiments in India and Costa Rica. What is clear is that the largest costs are often hidden in budgets of other agencies which supply field personnel and supply materials so that village projects can be effective. Rogers and his colleagues in their study of innovation using radio (1970) conclude that contact with a change agent is the single most important factor in adoption of innovations. This means that planners cannot simply subsitute a rural forum for a network of extension agents although from a cost perspective this might be appealing. Rather, the pattern would seem to be one of reinforcing complementary efforts of radio and extension agents.

There are more obstacles to the successful operation of farm forums on a large scale than the theoretical attractiveness would predict. Let us take several examples from the Dahomian experience. First, a functioning network of supervisors is lacking so that forums do not have personal contact with the project leadership and need to depend entirely on written reports for asking questions and getting help. Second, the production center is equally isolated from the village groups and cannot benefit from contact with forums to get feedback vital to program improvement. Third, there seems to be a lack of coordination between the rural radio programs and a number of rural projects programmed in other ministries. The most obvious and distressing case was one where another agency with a fleet of eight well equipped audio visual vans was unable to coordinate visits to villages of these vans with the work of the rural radio forums.

Some of the common problems with implementing forums were summed up by Schramm (1967) regarding the Indian experience: forums may have been made up of people in villages who were the least likely to need them (i.e. the local elite); programs needed more localness (decentralizing the programming/broadcasting); adequate materials to follow up on innovations were often lacking to villagers; more involvement by the development officers with the field experience was called for (network of supervisors to keep personal contact).

A final question about forums needs to be posed: even if the radio forums could be made to function properly, what likely would their outcome be on the development of rural areas? We have a number of countries presently operating forums but no adequate summative evaluation or results. The Michigan State Diffusion Project (Rogers et al. 1970) has tried to do field experiments to evaluate radio forums. They and others have found the forums the most successful strategy among several (including rural newspapers, radio alone, literacy groups, leadership groups, and animation). Their research reveals a distinct pattern about the success of village development that seems corroborated by much other innovation research (Rogers with Shoemaker 1971). In their three-nation field experiment study (Rogers, Roling, Ascroft 1970), the authors conclude that success in village development is most likely to occur in villages that are more advanced economically, have cooperatives, businesses etc., are more in contact with urban areas and are more integrated at a personal communication level. Leaders in innovative behavior are the more educated or literate, the better off, the larger land owners who are opinion leaders, those more likely to visit the city, and those more likely to have contact with the change agent. Finally, as the authors point out, the single most important factor in village development is the change agent contact with clients. He is, they conclude, most likely to interact with clients most like himeself, i.e. an educated professional from outside the village. The question, then, is not whether the forums can help in rural transformation but who is helped and how this transformation might take place. If the forums are used by those already relatively advantaged to increase that advantage, then the uneven development of rural areas is likely to continue with the help of the forums. Research, then, must focus on how radio forums might be used to bring the truly marginal rural people into a dynamic growth pattern.

The rural radio forum is still a promising strategy despite the problems it has encountered. But radio cannot be a substitute for the way the problem of rural development is focused. If a country wishes to place a real priority on rural development and is willing to create policies that will favor this goal, then the radio forum idea could be a useful strategy to help in its accomplishment. But at present there are few countries that have priorities that balance urban and rural development, much less favor the rural. Tanzania is an example, perhaps, and we see that radio is playing a part in helping rural groups (Dodds 1972), although the forum structure is not being used. What is important for success in the rural forum as Schramm and others have pointed out is that there be structures to support the individual efforts of village groups. For it is not the sheer effort of self-improvement or the adoption of a number of innovations that will generate rural transformation but basic changes in policy by government that must correlate with village efforts at self-improvement. It is the fusion of structural change on a national level with village self-improvement in which radio forums might best serve rural development in the future.

D. Radio Schools: The Nonformal Learning Group

One of the most widespread strategies for using radio in rural development was begun in the small town of Sutatenza, Colombia 25 years ago. The idea began with a parish priest who saw radio as a better means of reaching his rural people with both an educational and a spiritual message that might improve their lives. That effort a quarter of a century later has a national organization, Accion Cultural Popular (ACPO), with a budget in 1972 of $4.2 million (U.S. $), serving thousands of rural Colombians with its various programs.

Perhaps even more impressive than its success in Colombia is the direct and indirect influence that the idea has had. Table two below gives a summary of the direct influence, listing 25 similar projects in Latin America that have formal relations with ACPO's international division (OSAL). This table does not include a number of other projects in Latin America and elsewhere that have been inspired by the ACPO model but have less formal relations with it. The table presents certain of the external features of ACPO that are shared widely among the off-shoot projects in Latin America: (1) the audience is primarily illiterate rural adults; (2) efforts are almost entirely directed to literacy and basic education (reading, writing, some figuring) although advanced forms of instruction up to primary equivalency are available in some places; (3) "schools" are small organized listening/learning groups meeting in homes, churches, etc. under the charge of a local volunteer or monitor; (4) field organization usually exists in the form of a supervisor (sometimes paid) who tries to coordinate activities, distribute materials and "animate" (visit and encourage) groups from time to time; (5) the basic approach is multi-media, employing at least radio and printed booklets almost everywhere, but also frequently adding newspapers, charts, other booklets for reading, film strips, etc., plus, in some projects, pedagogical methods sometimes identified with the Brazilian educator Paulo Freire. Several other common external features not mentioned in the tables are; (6) all the projects (usually called Radio Schools) are run by private groups, usually affiliated with the Catholic Church; (7) their finances largely come from private funds and donations, often from international Catholic agencies, sometimes from a government subsidy and less frequently from self financing (except for ACPO which generates 74% of its operating expenses according to Brumberg (1972); (8) each project usually has one or several transmitters of its own which broadcast general education and entertainment programs for rural listeners besides the formal instructional programs, (ACPO has 4 powerful transmitters, the Guatemala group a network of 6, INCUPO in Argentina has 9).

This, then, is the Sutatenza model as it has grown in Colombia over a quarter of a century and as it has spread to most other Latin American countries especially in the last 10 years. But what are the internal characteristics of the model as it operates in the 17 countries of the continent? The goals of ACPO help to define the assumptions on which it operates. These seek to create what ACPO calls "a new type of Latin American man, capable of making rational decisions based on a Christian ideology of contributing to the establishment of a different social order based on the idea of human dignity." More specifically ACPO defines its goals as: (1) *Motivation* of the campesino or rural farmer for development; (2) *human promotion* or education of the whole man; (3) *integration* of the campesino into society; (4) *organization and development of the community* especially by participation in local organizations; (5) *productivity* of the campesino in his agricultural work; (6) *spiritual development* of the campesino in his personal life (Musto 1971).

The primary assumption of ACPO is that at the base of the problem of underdevelopment of the Latin American campesinos is their ignorance; their traditional attitude of passivity, fatalism and dependency; and a lack of solidarity among themselves to work toward a betterment of their situation. To this analysis of the problem ACPO has brought a response in what is called fundamental, integral education. ACPO insists that this goes much beyond development of mere reading and writing or cognitive skills and cannot be measured by tests or by adoption of innovations or economic productivity of rural areas but rather by a change in the attitudes of campesinos, a deepening of their sense of dignity and self worth and the creation of a "new man." The

TABLE TWO: Radio School Projects in Latin America, 1973

[Source: OSAL, 1972]

Country	Radio School	Date Begun	Target Audience	No. Centers	No. Students	Ed. Levels	Media Employed: Rad.	Bks.	News	Chts.	Other	Field Org.
Argentina	INCUPO	–	RI	–	–	L	X	X	X	X	wkbks.	VM/S
Bolivia	CAMCOS	–	Aymara I	443	6167	L	X	–	X	–	–	VM/S
	ERSAR	1970	RI	67	866	L	X	X	–	–	–	–
	ACLO	1967	Quechua I	126	1890	L	X	X	X	–	–	VM/S
Brazil	FEPLAN	1965	RA	–	675 8912	L equiv. sec.	X	X	–	–	–	VM/S
	MEB	1961	RA	–	4776	L 1°, 2° cycle	X	X	–	X	–	P(?)
Chile	Sta. Clara	1967	RA	–	–	1° cycle	X	X	–	X	Freire mt.	–
Colombia	ACPO	1947	RA	22,212	167,451	L/1°/2°	X	X	X	X	other read. material	VM/PS
Costa Rica	ICECU	–	–	–	–	–	X	X	–	–	–	–
Dom. Republic	Sta. Maria	1964	RA	–	10,000	L prim. equiv.	X	X	X	–	–	PM/S
Ecuador	ERPE	–	RA	–	–	L/1°	X	X	X	–	wall newsp.	–
	SEMA	1964	RA	65	1000	L/prim.	X	–	–	–	–	VM/S
	SUCUA	1972(?)	Shuhar A	50	2035	L/1°	X	–	–	–	–	VM(?)

Key: RI = rural illiterate
RA = rural adult
L = literacy
V = volunteer
M = monitor
/S = or supervisor
P = paid

TABLE TWO: Radio School Projects in Latin America, 1973 (continued)

Country	Radio School	Date Begun	Target Audience	No. Centers	No. Students	Ed. Levels	Media Employed: Rad.	Bks.	News	Chts.	Other	Field Org.
El Salvador	Rad. Schools	–	RA	–	–	L/1°2°	X	–	–	–	–	–
Honduras	Rad. Schools	1962	RA	–*	–	L/1°	X	X	–	–	Freire mt.	VM/S
	Rad. Progresso	1969	RA	–	–	L	X	X	–	–	Freire mt.	–
Guatemala**	Rad. Schools	–	Native Indian Ladino pop.	–	–	L	X	X	–	–	–	–
Mexico	Tarahumara	1957	Tara prim. child.	46	1081	prim. to 4th grade	X	X	–	X	–	PT
	Huayacocotla	1964	Indian RA	80	2000	L	X	X	–	–	–	VM/S
Nicaragua	Rad. Catolica	1966	RI	67	2000	L	X	X	–	–	–	VM/S
Panama	CEPAS	1969	RI	50	470	L	X	X	–	–	Freire mt.	–
	Rad. Hogar	–	RI	–	–	L	X	X	–	–	–	–
Paraguay***	Sch. Soc. Comm	–	–	–	–	–	X	–	–	–	–	–
Peru***	Rad. Onda Azul	–	–	–	–	–	X	–	–	–	–	–
	Rad. 800 Hullaya	–	–	–	–	–	X	–	–	–	–	–
Venezuela	IVT	planned for 1973	RI	–	–	L	X	X	–	X	film strips	VM/S

*White (1972) makes no information available on numbers of centers or students in his summary.
**Guatemala has six separate stations with groups of students; no numbers available (Gomez, 1971).
***Information not available from OSAL (1972) but from Musto (1971) p. 153.

Key: PT = paid teacher

chosen means to this goal are mass media, campaigns and organized listening groups. Together with its media based mass campaigns, ACPO trains a large cadre of local leaders who hopefully become change agents in the radio school communities.

ACPO's success over the years has been impressive. By 1968 ACPO could list, as Table two indicates, 22,212 centers with 167,451 enrolled students in the three levels of education (basic literacy, progressive and complementary (primary equivalency). It had a national organization, a 4.2 million U.S. dollar budget, the most powerful radio network in Colombia, a large listening audience among rural dwellers and an impressive list of rural improvements due to ACPO campaigns (Brumberg 1972). Outside of Colombia, ACPO, through its international branch, OSAL, could point to 24 projects in 16 other Latin Countries serving at least 500,000 campesinos in radio schools and a much larger unorganized rural listening audience.

Such a list of accomplishments is impressive and it would ordinarily be sufficient to regard them as evidence of success. Perhaps because of its very success, ACPO, along with its offshoots in the rest of Latin America, has been studied and evaluated over the past decade by a large number of people (Martin 1959; Primrose 1965; Bernal 1967; Lyle 1967; Nino 1968; de Kadt 1970; Musto et al. 1971; Vega and Keeler 1971; White 1972; Schmelkes 1973, among others).

Several of the most critical studies like those of de Kadt, Musto and Schmelkes as well as the extensive one by White, have tended to measure success by other than official statistics like numbers of students enrolled, potential listening audiences or number of rural newspapers printed and have asked what the effect of all this effort has been in helping change the rural areas. The problems that have been brought up by these authors concerning the radio school strategy might be summarized as follows:

1. Problems concerning the *external efficiency* of radio schools to affect social change in the rural population:

   (a) The radio schools, following the ACPO pattern, place an exclusive emphasis in their work on education and avoid any "political" action as a means of rural social change; this kind of approach does not work because education to create "a new Latin American man" that does not lead to action is not really seeking change or seeking to create a new man; the disavowal of many radio schools to engage in mobilization of rural people toward community action because it is political means that radio school students must seek to work for change outside the radio school structure.

   (b) The radio schools in trying to remain independent of government influence do not collaborate with rural change programs of a more developmental nature and thus work in isolation of any action/change program.

2. Problems concerning *internal efficiency:*

   (a) The radio schools place too much emphasis on mass media and not enough on direct formation of leaders who will be agents of real social change in their communities.

   (b) The leadership of radio schools is too remote from rural people, too centralized and does not foster genuine feedback.

   (c) Planning and organization are often so poor that even the relatively low financing put into the radio schools by international agencies often is not well spent.

These are very general problems that do not touch on the more specific details of operating the radio schools. Some of the latter deal with the quality of programs, the availability of rural reading material, the relevance of literacy as such to rural needs, the training and motivation of monitors and supervisors and the distribution and feedback system for printed materials and audience reaction.

Strengths of the Radio School Strategy

The important question is whether this approach despite these problems has promise for other parts of the world. The answer is that the basic strategy is sound if certain factors that are often overlooked are taken into account for operating the radio schools. Let us now consider some of the strengths of the strategy and how these might be reinforced by more careful planning.

First, the radio schools have had an exclusive orientation and an identity with the rural population and its problems. ACPO and other similar groups recognize that the problem of development is most acutely experienced in rural areas. There is disagreement among people as to the analysis of the cause of the underdevelopment and its solutions, but the focus by the radio schools on rural problems has emphasized that there are a sub-set of development problems that are peculiar to rural areas which must be dealt with in a special way. Given such an emphasis, the radio schools should foster greater knowledge of the real needs of rural areas by having a significant rural leadership in their organizations, real contact of policy makers with rural people and their problems, and a functional feedback system with the rural audiences they are trying to reach.

Second, radio schools have benefited greatly from their strategy of group listening and a system of local monitors and supervisors. Given the obstacles to learning for adults in rural areas, it is important to give whatever support is possible to motivate the student to begin and to persevere in his task. Support from his primary group through his fellow students and a monitor who is both a neighbor and not that far ahead in his learning encourages the adult that he can learn. Occasional visits from a supervisor who represents the larger organization at a regional or national level creates a sense of identity also with the radio schools.

When the radio schools represent a "movement" as they did with the MEB *(Movimento de Educadao de Base)* in Brazil (de Kadt 1970), and in Honduras (White 1972), the monitors become the critical force for change (and the mass media's role becomes proportionately less important as de Kadt points out for the early MEB movement in Brazil). If the monitor has the vision of change and understands how learning helps to foster change, he can motivate his group to make special efforts and to stay with the classes. In turn the solidarity of the group encourages perseverance in pursuing group goals and not an individual effort to improve oneself.

Third, ACPO has put a great deal of effort into developing a genuinely multi-media message for its radio schools. Although radio has been the key media in ACPO's efforts and remains so today, printed mass media and audio-visual aids are integrated into their education. It is probably the focus on rural problems that has prevented ACPO from being swept into an expensive emphasis on television as so many other projects have been. The radio schools are still struggling with the dilemma common to any mass media system of how genuinely to localize the message as much as possible without losing the advantage of reaching a mass and isolated rural audience.

Fourth, ACPO and other radio schools have used an existing structure to promote their educational work. Through the Catholic Church's very extensive parish system, the radio schools have often succeeded in rural areas where other projects have failed. Next to motivation of the monitor, the support of the local parish priest was one of the most important factors of success in spreading the radio schools in many Latin American countries. Priests were part of the power structure in rural areas and their support meant a great deal to allowing radio schools to operate. At the same time, these same priests often had an independent interest in promoting social change unlike other parts of the power structure. Such a situation is peculiar to Latin America and would not be applicable to rural areas in other continents, but the principle of working within some existing structure to change that structure has great strategic importance.

The Radio Schools have had a measure of success as we see by the survival and growth of the original ACPO project and by the rapid growth of offshoots in other Latin American countries during the last decade. A closer look at their effectiveness in the several evaluations cited gives the impression that although there are some serious questions about the goals and means of bringing social change to rural areas, the basic radio school strategy is sound. Costs have not been considered in this analysis although financing remains a major problem for the privately controlled radio schools. The dilemma of finding financing and remaining independent of government control is a continuing but bearable tension, unless the radio schools simply want to become another government agency. The tone of many of the radio schools' statement of goals (cf. OSAL 1972), stressing their dedication to educating the illiterate marginal people in the rural areas and promoting structual social change, means that for many the present solutions of their governments are not sufficient and perhaps not acceptable. The success of the radio schools must be judged on whether they can teach things like literacy, health, agricultural practice and still keep in sight their main goal of creating a "new man" in the Latin American rural areas.

E. Radio and Animation: The Participating Group

The animation strategy is a method that promotes among local communities a trained cadre of discussion leaders (animators) whose role is to promote in a nondirective way a dialogue in which community members participate in defining their development problems, in putting them in a larger social context and in working out ways of mobilizing people to take common action to overcome these problems. The technique grew out of a French tradition of group dynamics that was applied to development strategies in the early 1960's, especially in Africa (Colin 1965). Its influence has since been felt in a number of Latin American countries, beginning especially in Brazil in the early 1960's in the MEB project and the Freire method (de Kadt 1970) but also found in Honduras (White 1972), Bolivia (Blondin 1970), and also exists in Canada's Challenge for Change projects begun in the late 1960's (Gwyn 1972).

The assumptions of such a strategy are clearly different from those of both the rural farm forums and the radio schools that we have described previously. Briefly, some of the assumptions on which the animator strategy works are: (1) there are no solutions to problems that are imposed on local communities from the outside; local communities must first arrive at the problem definition and then its solution on their own; (2) the social animator is to be as closely identified with the local community as possible; (3) he is to be nondirective in his approach; (4) information's chief role in this approach is to help define the

problem, not give the solutions; (5) community participation and social action is the goal, feedback from the community is an essential means.

There are a number of examples where animation principles have been applied to the use of radio, often in conjunction with some form of rural radio forum or radio school principles. In Niger, for instance, the *Radio Clubs du Niger* have already had a decade of experience (La France 1967; El Hadj Badge and Robert 1972; McAnany 1972). On first glance, we might take the Radio Clubs as another African version of the rural radio forums as they exist in Ghana, Togo and Dahomey. On closer inspection there are some unique features in the Niger project. First, the primary objective of the radio broadcasts and discussions is to foster awareness of "national development plans in terms of local problems" and not to provide information on a problem defined by the experts. Second, in Niger feedback is not an "extra" as it seems in some other forums but an essential ingredient of the broadcast. Programs consist of taped responses of a variety of people among the listening audience about a problem. These opinions of people about a theme (e.g. paying taxes) form the program "content." The discussion of the group then follows and deepens what has already been begun by the audience in interviews.

Another example of a project that combined animation with another radio strategy, in this case radio schools, is the original MEB project in Brazil. De Kadt (1970) has traced the early context of the creation of MEB (*Movimento de Educacao de Base*, or Basic Education Movement) in 1961. The case is especially illustrative in reflecting upon use of media in social change and its many attendant problems. MEB was begun in 1961 as a radio school project to teach literacy to the rural population in the depressed areas of the Northeast. Even in the beginning there were circumstances that made MEB radio schools quite different from those of ACPO in Colombia. For one thing, the social and political changes in Brazil in the late 1950's had created a situation where rural populations were being mobilized into peasant leagues and rural unions that were a definite threat to the traditional power base in rural Brazil. De Kadt suggests that by 1961-62 the literacy movement was more a result than a cause of social mobilization, that rural leagues and unions that were organized in the previous years brought out an awareness of the need for literacy rather than literacy activating an awareness of a need for change.

MEB began with the ACPO method and philosophy but within a year or two the emphasis switched so that the monitor as a social catalyst became the center of attention and far less emphasis was given to the radio message. Social animation and a non-directive, non-manipulative approach were increasingly apparent in MEB and the mass media given greater importance was not radio but printed matter, especially when the new textbook *Viver e Luter* (To Live is to Struggle) appeared in 1963. The problem of "rural underdevelopment" was the focus of attention and both national and regional as well as local groups attempted to define this problem with all of its ramifications. Social change rather than education became the main focus of the effort even though MEB always maintained its claim to be primarily an educational rather than a political or even community change group. The high point of MEB's enrollment of 111,066 in 1963 came at a time when the possibility of political and social change was greatest in Brazil. The military coup of 1964 ended the possibility of such change and MEB's enrollment consequently fell to 30,920 by 1966 (de Kadt 1970).

The MEB case illustrates an important difference between the other radio strategies and the use of animation. MEB began its efforts by attempting to

define what the problem of underdevelopment was and not by simply stating the positive goals of development. Leaders of this project felt that unless they and their radio school students could understand the problem or cause of underdevelopment, efforts at social change would be frustrated and symptoms, not causes, would be attacked. MEB saw both the monitor as a change agent and the mass media of radio and printed materials as means of achieving social change but only in so far as it related to the problem of underdevelopment. Unlike other strategies, the MEB strategy did not see the mass media, etc. as directly causing this change. Rather, MEB recognized that the historical circumstances in Brazil of the early 1960's were such that they favored social change and that literacy, monitors and the mass media might be used to accelerate change.

Unique Problems of Radio Animation Strategy

There are unique problems that face a radio animation strategy. Again the MEB case may serve to illustrate. First, the non-directive approach frequently employed in the strategy emphasizes local control and local leadership. This emphasis may mean that many communities will be slow to get themselves organized or will not organize at all. The temptation will be strong to organize them from the outside. In the case of Brazil, MEB stayed away from interfering in local communities until other less non-directive groups like the Marxists began to take over. Then the MEB leaders finally decided to take more initiative and direction, but they had already lost much time and a number of political points to the opposition.

A second problem is related to the animation strategy's emphasis on local participation. The idea behind the effort to localize the development effort is that people will feel that they are the ones who are developing themselves. Under certain circumstances, this sense of participation can be good for the self-image of the group; in other circumstances, it can prove to be illusory. Senegal's Radio Disso (Mills 1972), for instance, is a government project in which radio is used to solicit rural feedback about government policies and programs for the rural areas. The danger here is that people can be manipulated by their sense of participating in the development of rural policy. It is possible that the feedback only serves to diffuse rural unrest by allowing farmers to criticize and complain while no real policy changes result from the local participation.

Another key problem for this strategy is one of deciding whether to choose between confrontation or collaboration with government development programs. MEB opted for confrontation before the coup of 1964 but quietly changed thereafter to one of collaboration. Canada's Challenge for Change is a kind of animation strategy sponsored by the government itself. It is entirely possible that the serious application of the animation work would lead certain communities into confrontation with the government, the program's sponsor. ACPO has opted for a more collaborative than confrontation role. It has tried to avoid the evils of both extremes of being repressed or co-opted by the government. One of its critics (Musto 1971) has suggested this action has led it into an effort isolated from other rural programs in Colombia. The dilemma is that none of the choices are very attractive.

A final problem is one shared by other strategies as well, the tension between mass media and the need to localize the message and adapt it to a group. ACPO has remained largely centralized with strong control exerted by the main headquarters in Bogota. Niger radio clubs have plans to decentralize broadcasts to smaller geographical and ethnic areas, and Senegal has already begun

such a process. Canada, too, has created several local radio stations. Another solution is to have the radio carry the message appropriate to the larger audience and give the monitor or animator the task of promoting a local focus on the problem. It is, after all, the local manifestations of the problem of underdevelopment with which local communities must deal if they are to move from generalities to real action. Another solution, used increasingly in Canada, is to employ a smaller media like video tape recording (Gwyn 1972) as a catalyst for feedback and community organizing.

It is difficult to make a clear estimate of the cost effectiveness of this animation strategy. On the effectiveness side the goals of local participation and heightened social and political awareness are much more difficult to measure than are such things as literacy or the adoption of certain innovations. The problem with costs is that a great deal of the work in such a strategy is done by voluntary personnel in the local communities. Even if one wanted to estimate real costs, it would be difficult because chronic underemployment in rural areas may mean that the opportunity costs of such volunteer work may be close to zero. Furthermore, it is difficult to generalize results to other situations. The motivation to volunteer work may depend on the particular charisma that a movement generates as White has pointed out for the radio schools of Honduras.

The promise of the radio animation strategy, however, makes it worth our continued study and experimentation. It remains a strategy that demands more of local communities as well as from supporting agencies. If the government or some other agency does not place a priority on actions as well as on words in its development plans for rural areas, the limit of the effectiveness of the mass media alone will quickly be reached. Even teaching people to read and write turns to frustration if there is no support for change in the environment. Communications may be an important element in teaching and awakening an awareness that a community can be developed, but unless rural people have something to read and a reason to do so literacy skills are useless; and unless there are financial and technical possibilities for improving one's community, there is no incentive to try. White (1972) points out about the Honduran project he studied for two years: "The limitation of the radio schools seems to stem in great part from the emphasis on voluntarism, the attitude that if the individual *tries* to change himself and his environment, he can do so. This activism is directed against the traditional fatalism of the campesino. But there also has to be support in the environment, that is, from many different agencies which provide resources with which the increased motivation can work, and accompanying structural changes. The campesino cannot do it all by himself no matter how hard he tries, and to lead him to think he can is too frustrating" (p. 132). With genuine support for change, a radio animation strategy can provide a catalyst for learning skills and applying them to the improvement of the rural areas.

IV. Conclusions

The review of radio strategies for education/development of rural areas reveals a vast array of effort that has been summarized under the five strategies of open broadcasting, instructional radio, rural radio forums, radio schools and radio animation groups. In a certain sense, these categories have been imposed on a great many projects which use radio as a key element. Yet there are historical patterns for at least the last three strategies that can trace rural radio forums to Canada in the early 1940's, radio schools to Sutatenza, Colombia in the late 1940's and the animation to French development theory in the late 1950's and early 1960's.

The extensive review of the literature on radio's role in rural development suggests both conclusions about past performance and some recommendations about the future. A *first* conclusion of this review is that these efforts to use radio for rural development have been largely fragmented. In only a few projects like ACPO in Colombia or the farm forums of Togo is there a national effort involving a significant number of rural peoples. Many of the other efforts are small and unrelated to larger development efforts. This means that most governments are not giving high priority to rural development or are not using radio as a part of this effort.

The *second* related conclusion is that a close look at the existing projects shows that radio is reaching only a minute fraction of its potential audience. Although there are a large number of radio projects following one of the five strategies in many countries, the numbers being reached are discouragingly small. In Brazil, for example, the actual radio audience participating in non-formal instruction in both urban and rural areas is about 40,000 or less than 1% of the "potential" audience. Radio school audiences outside Colombia's ACPO, in ten Latin American countries that give such information, is only about 40,000. Any significant change in rural areas will demand a greater number of people to be educated and mobilized.

A *third* conclusion is that there is very little good evidence about the effectiveness, much less cost-effectiveness of these projects. ACPO in Colombia again is an exception in that several studies have been done on its effectiveness and one has tried to gather some costs. But even in the case of ACPO the evidence is of a highly tentative nature. There seems to be a growing concern on the part of a few projects to evaluate results and perhaps gather costs. However, few studies have been able to work out methodologies for this evaluation which often deals with difficult areas like modernization, attitude change and value formation.

A *fourth* conclusion in looking at radio projects and social change for rural areas is the fundamental importance of the context in which the project operates. This context has two meanings here. First, radio strategies for social change in rural areas cannot operate in a vacuum of institutional support. Unless there are agencies functioning in rural areas to help change take place, no radio strategy can succeed. Second, there is a real question about the process of social change and radio's or mass media's part in it. In theoretical discussions of the media, it often seems to be assumed that the media create social change. Examined historically, the most significant social change in rural areas seems to have begun because of certain socio-political conditions and that the change sought out the media to continue this process. The MEB project in Brazil is a case in point where the creation of the radio schools followed the beginnings of the rural leagues and unions of campesinos and in turn became a way of continuing this process by bringing literacy to mobilizing rural groups.

A *final* conclusion from all the evidence is that these projects lack both planning and careful administrative follow-through. Too little attention seems to be paid to the determination and definition of goals and too much to simply getting a project operational; too little to an evaluation of results and an ability to change or even cease operation and too much to the virtue of sheer self-preservation. A lack of coordination between radio projects and other development efforts in rural areas is endemic to most of the cases reviewed. Better planning and more attention given to management would be of great benefit.

Radio has been widely used by developing nations for a variety of tasks although this application of radio has been sporadic and poorly planned and the medium's potential poorly exploited. Nevertheless, radio is the most promising mass media for rural development in the next decade if only because it alone reaches the rural audience. Despite suggestive ideas about television's role in rural areas (Bourret 1971) and increasing use of VTR for community development (Gwyn 1972), the cost-effectiveness of radio is still more promising in comparison.

What role should radio play in the next ten years and how might this role be fostered by those interested in education and social change in the rural areas? The following set of recommendations are tentative outcroppings of this review:

1. Better efforts to get costs of the different radio strategies should be undertaken. This should be in two phases: first, some costs of ongoing projects should be gathered to examine empirically what different projects spend their money on; second, costs should be kept on projects just beginning. Out of this should grow some consideration of where expenditures should be made, what percentages of budgets should be allocated to various parts of a radio project according to the different strategies.

2. The promotion of new projects should place an emphasis on careful planning and clear definition of objectives. An understanding of what development problem is being attacked and the assumptions which underlie the approach taken must be developed. In the more community oriented strategies of rural forums, radio schools and animation, this demands coordination with existing rural agencies to tie development activities into a common effort. In instructional radio careful planning of curriculum is an essential but neglected aspect of most projects in the past. A small amount of effort in this area would increase effectiveness of this strategy greatly.

3. New radio projects should be tied into a multiple media approach, especially with simply printed materials (much in the way ACPO has promoted in Colombia) so that appropriate reading matter is provided for new literates. This material should be practical to needs of rural life regarding family, agriculture and health.

4. New radio projects in all of the strategies, except for open broadcasting, should allocate a significant amount of time, money and effort to the training of monitors and field supervisors since these are often the key elements in both learning and social change. It is clear that radio projects will cost more, the more field support they provide, yet a great deal of evidence points to the critical role the monitor, group leader or animator plays in rural development.

5. New radio projects should attempt to evoke as much local participation as possible. A mechanism for allowing feedback should be planned for each

project. Moreover, radio should allow the group leader to localize the message and elicit response from the audience.

6. New radio projects might be chosen for those areas in a country that have shown signs of increased awareness. This recommendation recognizes the role of radio as accelerating social change and development rather than beginning the process. Too frequently in the past we have experimented with technique and forgotten the crucial social context into which the technique must fit. If there is general apathy and nothing is done by governments to develop rural areas, radio, however well planned and financed, cannot change this situation.

7. More research is needed in radio strategies. This research might take two broad lines: careful evaluation of a few small projects that are already operating to estimate costs and effectiveness; evaluations of several pilot projects in the three strategies, an open broadcast case, an instructional radio case, and perhaps a case combining the best features of rural forums, radio schools and animation.

8. Training of technical production people should emphasize basic skills and a simplicity of method so that rural people themselves can become involved.

9. New radio projects should examine the possibilities of co-ordinating the political necessity for more locally controlled projects with the economic necessity for larger-scale uses of technology.

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